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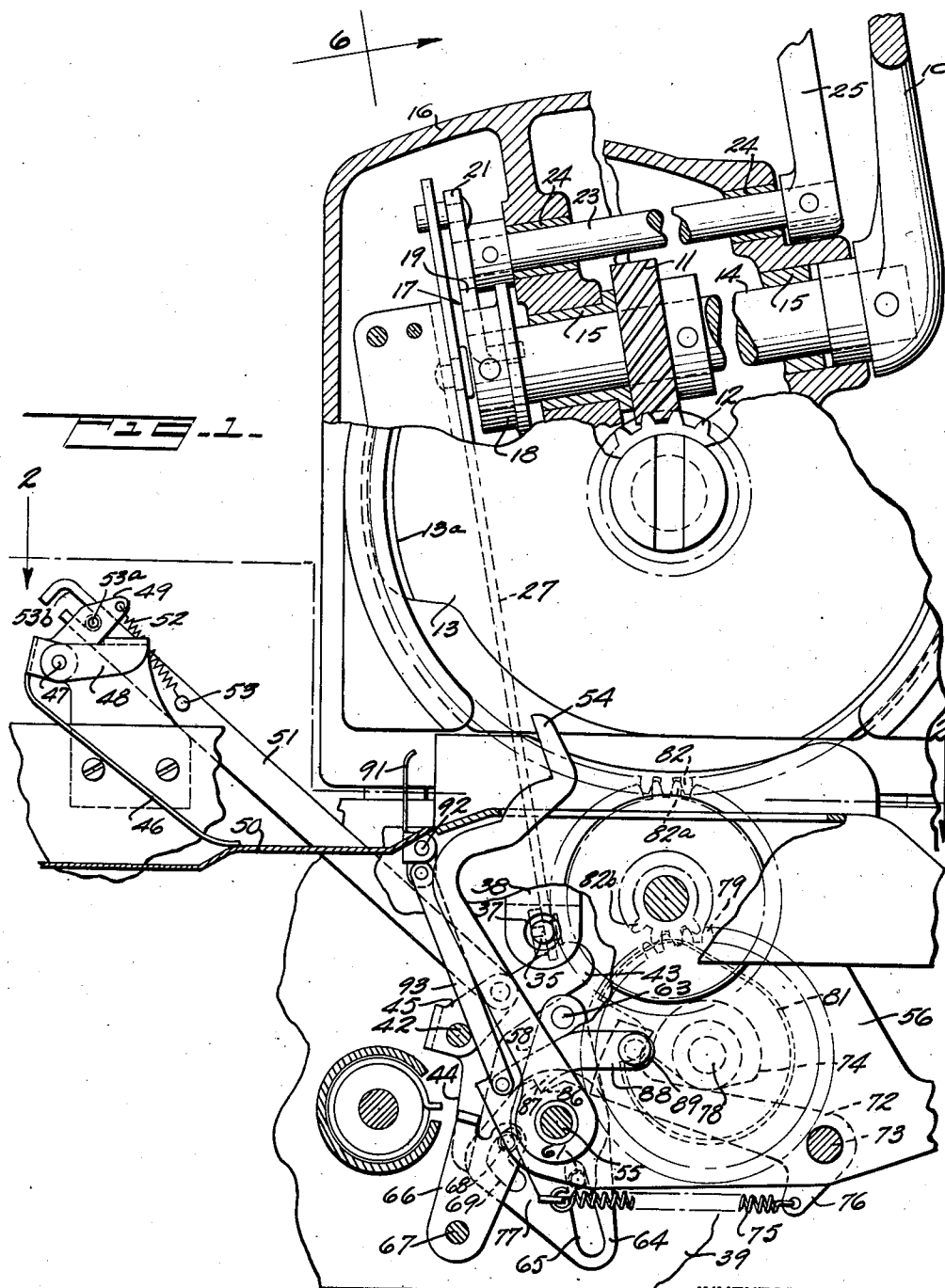
B. KNAUER

2,358,401

LETTER CONTROLLED MECHANISM

Filed March 12, 1943

3 Sheets-Sheet 1



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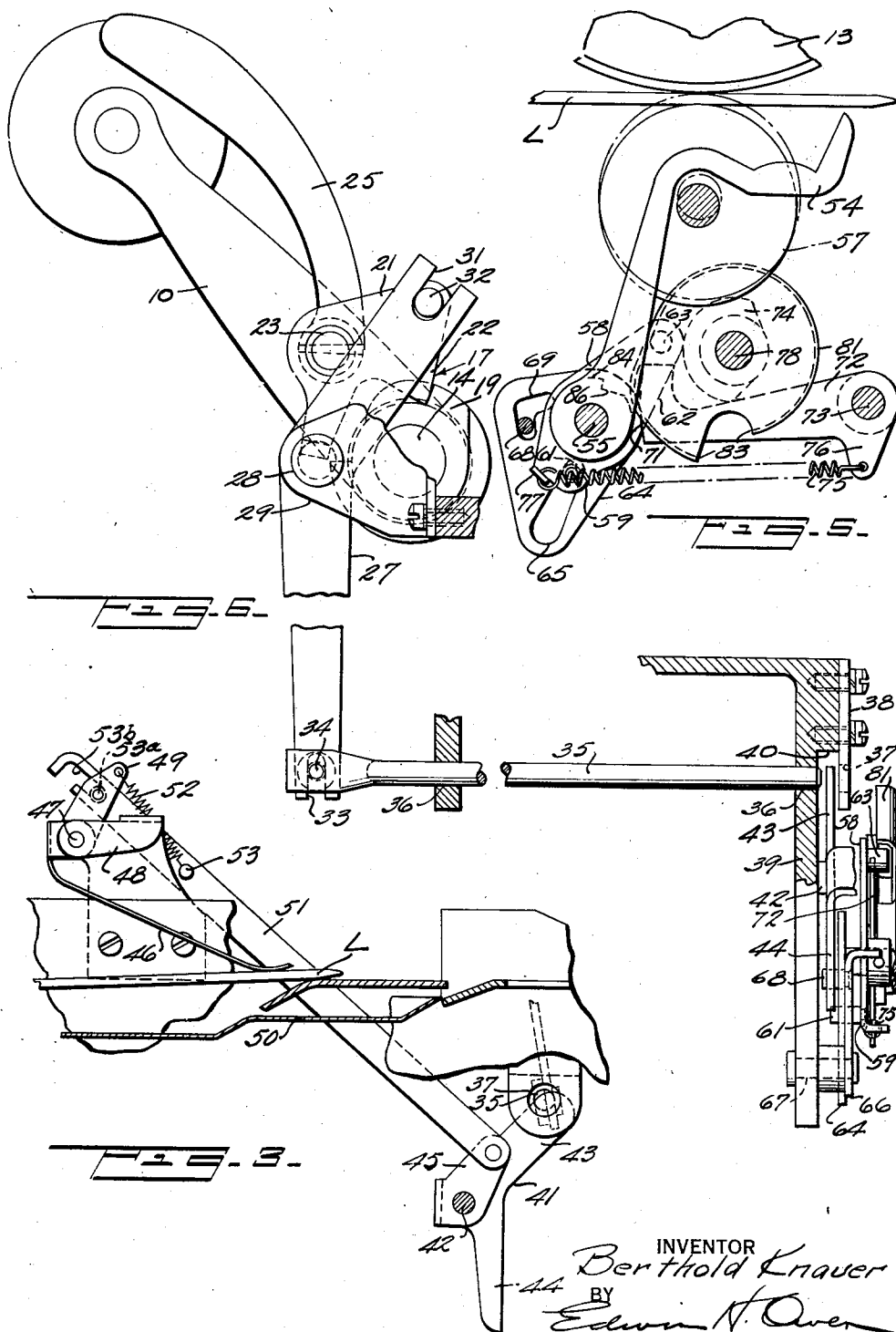
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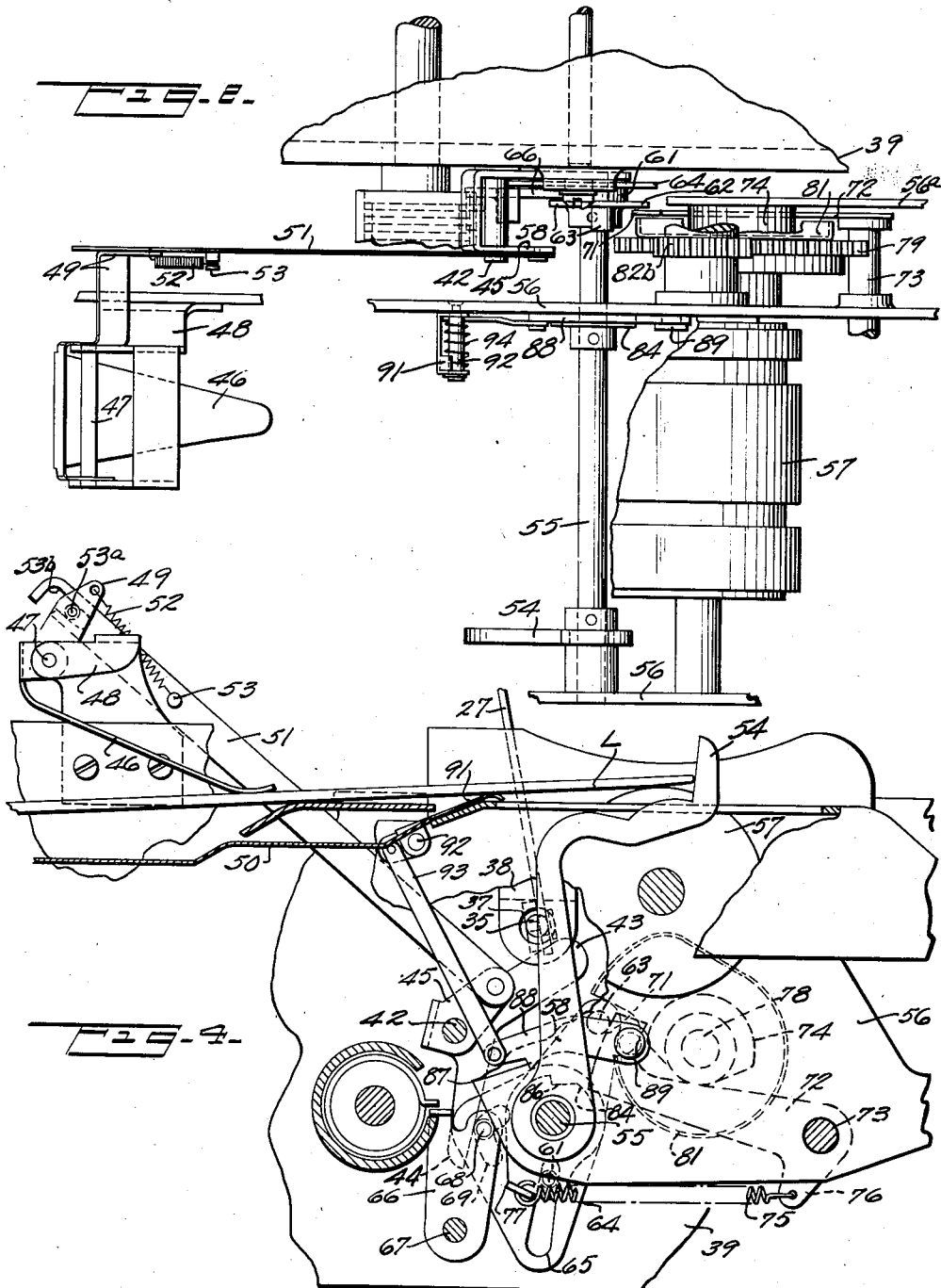
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3 Sheets-Sheet 3



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LETTER CONTROLLED MECHANISM

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5 Claims. (Cl. 101—235)

This invention relates to a postage printing machine and more particularly to letter controlled mechanism for preventing a tripping and printing operation until the letter has been inserted to a correct printing position with relation to the printing member.

It is the principal object to provide means whereby upon inserting a letter in a postage printing machine, the leading edge of the letter will engage a member in the path thereof, which member will effect movement of obstruction means to obstruct movement of the trip, and whereby, upon subsequent engagement of the leading edge of the letter with a letter stop, the obstruction means will be removed to free the trip, and thus permit a printing cycle of operation to be effected when the letter is in correct printing relation with the printing member.

It is a further object to normally obstruct the letter stop from movement such as may result from malicious intent or accident, and to control the release of said letter stop by the engagement of the leading end of a letter with a member positioned in the path thereof.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that various changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

A preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:

Fig. 1 is a part front elevational and part sectional view showing a portion of a postage printing machine and particularly the parts associated with the trip and letter stop mechanism;

Fig. 2 is a plan view of a portion of the mechanism shown in Fig. 1, taken substantially along the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary detail view, showing the result of the initial engagement of the leading end of a letter with a member which controls the operation of a trip obstruction means;

Fig. 4 is a view similar to the lower portion of Fig. 1, showing the leading end of a letter as having advanced to a stop position and having first effected the release of a latched letter stop, and finally effecting the removal of the trip obstruction means from an obstructing position;

Fig. 5 is a fragmentary detail showing the position of certain parts during a printing cycle of operation; and

Fig. 6 is a part sectional and part elevational view taken in the direction of the arrow 6 on Fig.

1, and showing a manual trip and drive, with a trip blocking mechanism and parts associated therewith.

Referring to the mechanism in detail, the machine may be either power or hand driven. In the device herein disclosed, the machine is hand driven by means of a crank 10, which when rotated is adapted to rotate a spiral gear 11 to effect the drive of another spiral gear 12 and a printing drum 13 through one complete cycle of operation. The crank 10 and spiral gear 12 are fixed to a shaft 14, which shaft is carried by suitable bearings 15—15 within a casing 16.

The crank 10 is normally locked against rotation by means of a latch mechanism generally shown at 17 as shown in Figs. 1 and 6. Said latch mechanism comprises a sleeve 18 fixed to the shaft 14 and having a lug 19 projecting therefrom. A latch stop 21 has a nose portion 22 normally engaging the lug 19, to thus obstruct rotation of the crank shaft 14. Said latch stop 21 is fixed to one end of a shaft 23, which shaft is supported in bearings 24—24 and has a thumb trip lever 25 fixed to the opposite end thereof. As best shown in Fig. 6, said lever 25 is arranged to conveniently lie in the path of the thumb of the operator's hand when the crank 10 is gripped by the operator to effect a cycle of operation. Before movement of the crank can be effected, the trip lever 25 is rocked to rotate the shaft 23 and latch stop 21, to thereby withdraw the nose portion 22 from the path of the lug 19, and thus free the crank 10 for rotation.

Cooperating with the latch stop 22 is an auxiliary mechanism which is associated with letter control mechanism for the purpose of preventing a trip until a letter, which is to receive a postage impression, is in correct printing relation with the printing die 13a on the printing drum 13.

The auxiliary mechanism, best shown in Fig. 6, comprises a lever 27, which is pivotally mounted at 28 on a bracket 29. One end of said lever 27 extends upwardly from the pivot 28 and has a forked portion 31 in engagement with a pin 32, projecting from the side of the latch stop 21. A downwardly extending arm of said lever 27 has a forked end 33 engaging a pin 34, projecting from one end of a rod 35. Said rod 35 is disposed in a horizontal direction through bearings 36—36. Under normal printing operations the release of the latch stop 21, through the rocking of the trip lever 25, will also effect rocking of the lever 27 and move the rod 35 to the right, as viewed in Fig. 6, to extend the forward end of said rod through an opening 37 in a plate 38. Said plate 38 is secured to a boss 40 on the front wall 39 of the machine frame so as to extend slightly beyond or spaced from said wall 39.

If, when inserting a letter in the machine, an

attempt is made to trip the thumb lever 25 before the letter reaches a proper printing position with relation to the printing drum 13, movement of the rod 35 is obstructed, which consequently obstructs movement of the trip lever 25 to prevent a trip.

The obstruction means comprises a rocker lever 41, best shown in Fig. 3, which lever is pivotally mounted upon a pin 42 projecting from the wall 39 of the machine frame. Said lever 41 includes an upwardly disposed arm 43 which forms the obstructing member, a downwardly disposed arm 44, and a second upwardly disposed arm 45 formed on a wing extending outwardly from the lever 41. The obstructing arm 43 is positioned within the space between the outside of the wall 39 and the inner side of the plate 38, and is adapted to be rocked about its pivot pin 42 from a normal non-obstructing position, as in Fig. 1, to an obstructing position in the path of the rod 35, as in Fig. 3, when a letter L is being advanced to, but before it reaches, a printing position.

Control means is provided for the arm 43, whereby said arm may be moved to an obstructing position when initially inserting a letter L in the machine. Said control means comprises a letter engaging plate 46, Fig. 3, which plate has its upper end pivotally mounted at 47 upon a bracket 48. An arm 49 formed on a part of the plate structure 46 is linked to the upwardly disposed arm 45 of the rocker lever 41 by means of a link 51. By means of a spring 52 which is connected between the arm 49 and a pin 53 projecting from the link 51, and further by means of the engagement of a pin 53a with a slotted end 53b of the lever 51, a yieldable connection is provided and the free end of the plate 46 is urged toward the surface of a letter feed plate 50.

When inserting a letter L as in Fig. 3, the leading end thereof will engage the free end of the plate 46 and will rock same about the pivot 47 in a counter-clockwise direction to effect a pull, through the spring 52 of the link 51. This in turn will rock the rocker lever 41 in a counter-clockwise direction, to move the upwardly extending arm 43 to an obstruction position in the path of the end of rod 35. During the period of letter insertion therefore, the movement of the rod 35 will be obstructed, which in turn will obstruct the operation of the trip lever 25.

To effect release or removal of the arm 43 from an obstructing position when the letter L has reached a proper printing position, a letter stop lever 54 is provided, which lever is mounted upon a shaft 55. Said shaft 55 is suitably mounted in bearings provided in plates 56—56 of a frame which supports the impression roller 57. A lever 58, Figs. 2, 5 and 6, is fixed at the inner end of the shaft 55, which lever has a short downward projection 59 with a pin 61 projecting inwardly therefrom toward the wall 39. Said lever 58 also includes an upwardly projecting arm 62, which has a forwardly projecting pin 63 near the upper end thereof. To the rear of lever 58 is another lever 64, which is freely mounted upon the shaft 55, but is joined with the lever 58 through the engagement of the lower pin 61 with a slot 65 in said lever 64. A lever 66, Figs. 1, 2, 4 and 6, cooperates with the lever 64, and is pivotally mounted upon a pin 67 carried by the wall 39 of the frame structure. Said lever 66 also has a pin projecting rearwardly therefrom, which pin extends within a slotted portion 69 in the lever 64, and therebeyond into the path of

the downwardly projecting arm 44 of the lever 41.

With the lever arrangement as described above, which includes the levers 41, 58, 64 and 66, a letter L upon being moved from the position of Fig. 3 to the position of Fig. 4, will have engaged the letter stop lever 54 and moved same in a clockwise direction until the said stop lever reaches a predetermined stopping position. The said stopping position is controlled by means of the engagement of pin 63 of lever 58 with the free end 71 of a lever 72, as best shown in Figs. 2 and 4. Said lever 72 is mounted upon a shaft 73 carried by one wall of the frame structure 56, and is normally urged against the lower surface of a cam 74 by means of a spring 75, which spring is stretched between a downwardly extending arm 76 on the lever 72 and a lug 77 on the lever 58. The cam 74 is fixed to a shaft 78, which shaft has also fixed thereon a gear 79, and a cupped cam member 81. The shaft 78 is suitably supported in one wall 56 and a wall 56a.

During the movement of the letter stop lever 54 from the position of Fig. 1 to the position of Fig. 4, the lever 58, Fig. 5, will be rocked in a clockwise direction and the lever 64 will be rocked therewith as the result of the pin and slot connection 61, 65. Movement of said lever 64 will also effect movement of the lever 41, as the result of the engagement of the pin 68 of said lever 66 with the downwardly projecting arm 44 of the lever 41. By the time the letter stop has reached the position of Fig. 4, the lever 41 will have been rocked to move the upwardly disposed arm 43 from the path of the end of rod 35, thus freeing the trip mechanism for a tripping operation.

After tripping is effected by depressing the trip lever 25, the crank 10 is rotated to thus rotate the printing drum and effect a printing operation when the printing die 13a engages the upper surface of the letter L, and with the aid of the impression roller 57, move the letter as printing is effected.

A drive is provided to the cam shaft 78 by means of a train of gears indicated at 82—82a—82b, the latter gear meshing with gear 79. By means of said drive, cam 74 is rotated in a counter-clockwise direction, and when said cam approaches the position shown in Fig. 5, it will have rotated the lever 72 about its pivot 73 and will have removed the free end 71 thereof from the path of the pin 63 on lever 68. The letter stop being thus freed may be moved by the movement of the letter L during the printing cycle as indicated in Fig. 5.

To prevent the return of the letter stop before the cycle is completed, the cupped cam member 81 which is of flanged shell formation, with a break in the flange as at 83, will, during rotation, be adapted to pass over the pin 63 and cam the letter stop to a position below the lower surface of the letter. The letter stop is retained in said latter position until the end of the cycle, whereupon the pin 63 will be urged outwardly beyond the cam under the tension of spring 75, upon reaching the break 83 in the flanged portion of the cam. The lever 72 will also return to its normal position under tension of said spring 75.

In the operation of the above described mechanism, a letter L upon being inserted in the machine will first engage the plate 46 to rock same about its pivot 47, and will effect rocking of the lever 41, to move the upwardly disposed arm 43 thereof into the path of the horizontally mov-

able trip rod 35, and thus obstruct a tripping operation. As the letter L is further advanced, the leading end thereof will engage the letter stop 54 to rock said stop, the shaft 55 and lever 58, until the pin 63, which projects from lever 58, engages the end 71 of lever 72, as shown in Fig. 4. During the rocking movement of said letter stop 54, pin 68, which engages the downwardly disposed arm 44 of the lever 41, will have effected removal of the upwardly extending arm 43 from the path of the horizontally movable bar 35.

A trip is now adapted to be effected by depressing the trip lever 25 which frees the crank 10. Rotation of said crank through a full revolution then is made to effect a cycle of operation.

During said operating cycle the shaft 78 is rotated, including the cam 74 and cam member 81, the cam 74 effecting removal of the stop lever 72 from the path of the pin 63, to thus free the letter stop, and the flanged portion of cam member 81 being adapted to engage the pin 63 and effect removal of the letter stop to a position below the lower surface of the letter. Return of the parts to their normal position at the end of a cycle, is effected by means of the spring 75.

While the above described mechanism provides control through the movement of a letter to a printing position to prevent an actual printing operation from being effected until the letter is in proper position to receive the printed impression, it is also desired to include means whereby the letter stop may be moved only through the sequence of engagement of the leading end of a letter with the plate 46 and letter stop 54, and not by any accidental trip of the letter stop alone.

To produce the latter result, a latch mechanism is provided which includes a latch collar 84, Figs. 2 and 4, fixed to the shaft 55, which collar has a notch 86 therein. Engaged with said notch 86 is a projecting lug 87 of a latch lever 88, which lever is pivotally supported upon a pin 89 carried by one of the walls 56. A letter trip finger 91 is normally disposed in the path of the letter at a predetermined position ahead of the letter stop 54, as in Fig. 1, and is pivotally mounted upon a pin 92 carried by one of the walls 56. By means of a link 93, the latch lever 88 and trip finger 91 are joined together in such manner that when a letter is moved into engagement with the trip finger 91, the said finger will be rocked about its pivot pin 92 to effect withdrawal of the lug portion 87 of latch 88 from the notch 86 of the latch collar 84. Therefore, by the time the letter advances to engage the letter stop 54, the said stop is free to be moved by the letter. Return of the trip finger 91 to its normal position, as in Fig. 1, may be effected by means of a light spring, such as indicated at 94 in Fig. 2.

Having described the invention, what is claimed is:

1. In a machine having a printing drum and adapted to effect the printing of postage stamp impressions upon letters, a letter positioning stop engageable and movable by a letter to position the letter with respect to the printing drum, a trip to release the machine for a printing cycle of operation, letter engaging means associated with the trip and movable when engaged by a letter, obstruction means connected with the letter engaging means to obstruct a tripping operation while inserting a letter in the machine, and means controlled by the letter positioning stop to effect removal of the obstruction means and

thereby free the trip when the letter is properly positioned to receive the postage stamp impression.

2. In a machine having a printing drum and adapted to effect the printing of postage stamp impressions upon letters, a letter positioning stop engageable and movable by a letter to position the letter with respect to the printing drum, a trip to release the machine for a printing cycle of operation, letter engaging means associated with the trip and movable when engaged by a letter, obstruction means connected with the letter engaging means to obstruct a tripping operation while inserting a letter in the machine, and means connecting the letter positioning stop with the obstruction means to effect removal of the obstruction means and thereby free the trip when the letter is properly positioned to receive the postage stamp impression.

3. In a printing machine having a rotary printing drum for printing postage upon letter, a drive for the printing drum, a trip to release said drive for a printing cycle of operation, a letter stop engageable by a letter upon moving the letter to a printing position, means associated with the trip and movable under control of the moving letter to an obstructing position to prevent operation of the trip until the letter reaches a predetermined position relative to the printing drum, and connections between the obstruction means and letter stop, whereby the obstruction means is removed to free the trip when the leading edge of the letter is in a printing position.

4. In a printing machine having a rotary printing drum, a drive for the printing drum, a trip to release said drive for a printing cycle of operation, a movable letter stop engageable by the leading edge of a letter, a pivotal member normally lying in the path of the letter and engageable with the upper surface thereof before engaging the letter stop, obstruction means connected with the pivotal member and movable to an obstructing position relative to the trip to prevent operation of the trip while inserting a letter in the machine, connections between the obstruction means and letter stop whereby the obstruction means is removed from an obstructing position when the leading edge of the letter reaches a printing position, thereby permitting a trip and printing operation when the letter is properly located to receive the printed impression.

5. In a printing machine having a rotary printing drum, a drive for the printing drum, a trip to release said drive for a printing cycle of operation, a movable letter stop engageable by the leading edge of a letter, latch means normally blocking movement of the stop, a latch release member engageable by a letter to free the stop, means normally positioned in the path of the letter and engageable by the letter after effecting the latch release, obstruction means connected with said latch means and movable to an obstructing position to prevent operation of the trip while inserting a letter, and connections between the obstruction means and letter stop, whereby the obstruction means is removed from an obstructing position when the leading edge of the letter reaches a printing position, thereby permitting a trip and printing operation when the letter is properly located to receive the printed impression.

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